Retrovirology

Poster presentation

P03-04. Increased virulence of CAEV chimeras expressing Nef and Vpx/Vpr accessory proteins in infected goats

Y Jin[1], G Arrode-Brusés[1], N Halloway[1], O Narayan[1] and Y Chebloune*[2]

Address: [1]University Kansas Medical Ctr, Dpt Microbiol Mol Genet & Immunol, Kansas City, KS, USA and [2]Animal Health, INRA, Villeurbanne, France

* Corresponding author

from AIDS Vaccine 2009
Paris, France. 19–22 October 2009

Published: 22 October 2009

Retrovirology 2009, **6**(Suppl 3):P21 doi:10.1186/1742-4690-6-S3-P21

This abstract is available from: http://www.retrovirology.com/content/6/S3/P21

Background

Caprine Arthritis Encephalitis Virus (CAEV) is a goat lentivirus closely related to HIV except that CAEV never causes AIDS-like disease in goat, in addition, only a minor proportion of infected goats develop inflammatory diseases. One of the main differences that distinguishes CAEV and HIV is the simplicity of CAEV genome organization. CAEV lacks 3 out of 6 regulatory/accessory genes found in HIV. We thought that CAEV/goat is an excellent model to study the functions and the implication of primate lentiviral accessory proteins in the pathogenicity of lentiviruses.

Methods

We generated CAEV chimeras by inserting nef or vpx/vpr or both coding sequences in the genome of CAEV. All chimeras replicated productively and expressed their transgenes in infected target cells.

Results

Interestingly, all 3 chimeras showed increased cytopathicity in target cells, while no modification of the virus titer was observed. Experimental infection of newborn kids using the chimeric virus expressing both Nef and Vpx/Vpr resulted in more persistent viral replication in peripheral blood cells than the parental CAEV. Longitudinal counts of blood cells combined with phenotypic examinations of cells showed persistent decrease in the proportion of circulating T cells in the chimera-infected goats compared with those infected with CAEV. Examination of viral dissemination in tissues of sacrificed animals at 6 months PI showed no difference in target tissues except that virus was isolated CNS of goat infected with the chimera but not CAEV. Interestingly, all animals infected with the chimera but none with CAEV developed typical interstitial pneumonia in their lungs. In addition we found increased expression of MCP-1 and IP-10 chemoattractant chemokines in the inflamed lungs of chimera- compared with CAEV-infected animals.

Conclusion

Altogether these data clearly associate the addition/insertion of nef and vpx/vpr transgenes in CAEV genome, with increased virulence of the virus.